

WHAT IS CLAIMED IS:

Claims 1-35 (CANCELLED).

36. (NEW) A water-based composition for treating a metal, comprising a treatment agent selected from an alkanethiol, alkyl thioglycollate, dialkyl sulfide or dialkyl disulfide, and in concentrations effective to solubilize said treatment agent:

a non-ionic relatively hydrophobic surfactant which is a compound of the formula

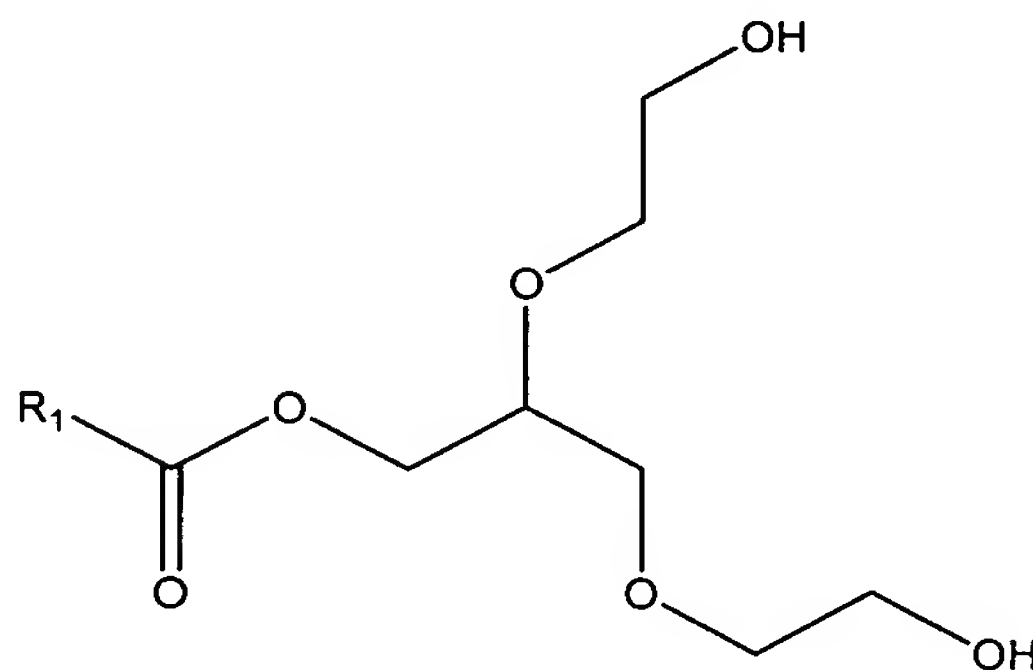


wherein R_1 represents C_{10} - C_{24} alkyl or alkenyl, m is 0 or 1 and n is 1 or 2, or which is ethoxylated fatty acid monoglyceride; an anionic surfactant; and a zwitterionic surfactant selected from betaine surfactants, imidazoline-based surfactants, aminoalkanoate surfactants and iminodialkanoate surfacts.

37. (NEW) The composition of claim 36, wherein the treatment agent is hexadecyl or octadecyl mercaptan.

38. (NEW) The composition of claim 36, comprising 0.5-10 wt %, preferably 1-6 wt % and most preferably 2-5 wt % of a non-ionic relatively hydrophobic surfactant which comprises:

- (a) cocamide DEA;
- (b) an ethoxylated fatty acid monoglyceride of the formula:



wherein R_1 represents C_{10} - C_{24} alkyl or alkenyl, preferably C_{12} - C_{18} alkyl or alkenyl; or

(c) glycereth-2-cocoate.

39. (NEW) The composition of claim 36, further comprising 0.5-10 wt %, preferably 1-8 wt %, and more preferably 1-5 wt % of glycerol or of another polyol.

40. (NEW) The composition of claim 36, comprising 0.1-15 wt%, preferably 0.3-10 wt%, more preferably 0.5-1 wt% of a monovalent cation salt of sodium laureth sulphate or another an anionic surfactant of the formula $\text{RO}-(\text{CH}_2\text{CH}_2)_n\text{SO}_3\text{M}$ wherein R represents $\text{C}_{10}\text{-C}_{18}$ alkyl, n is 2-6 and M represents a monovalent cation.

41. (NEW) The composition of claim 36, comprising 0.3-6 wt%, preferably 0.6-3 wt% and more preferably 0.9-1.5 wt% of cocamidopropyl betaine or of another zwitterionic surfactant.

42. (NEW) The composition of claim 36, comprising treatment agent in an amount of 0.5-2 wt%, preferably about 1 wt%.

43. (NEW) The composition of claim 36, further comprising 0.1-3 wt%, preferably 0.5-2 wt%, more preferably about 1 wt% of sodium chloride, sodium sulphate or another salt of a strong base with a strong mineral acid.

44. (NEW) The composition of claim 36, which is
(a) a polishing dip and further comprises an acid and a thiourea; or
(b) a cream or paste polish further comprising a solid polishing medium which may be precipitated chalk, infusorial earth, silica or γ -alumina.

45. (NEW) The composition of claim 36, for the treatment of a silver-copper alloy, a silver-copper-germanium alloy, copper, brass or nickel.